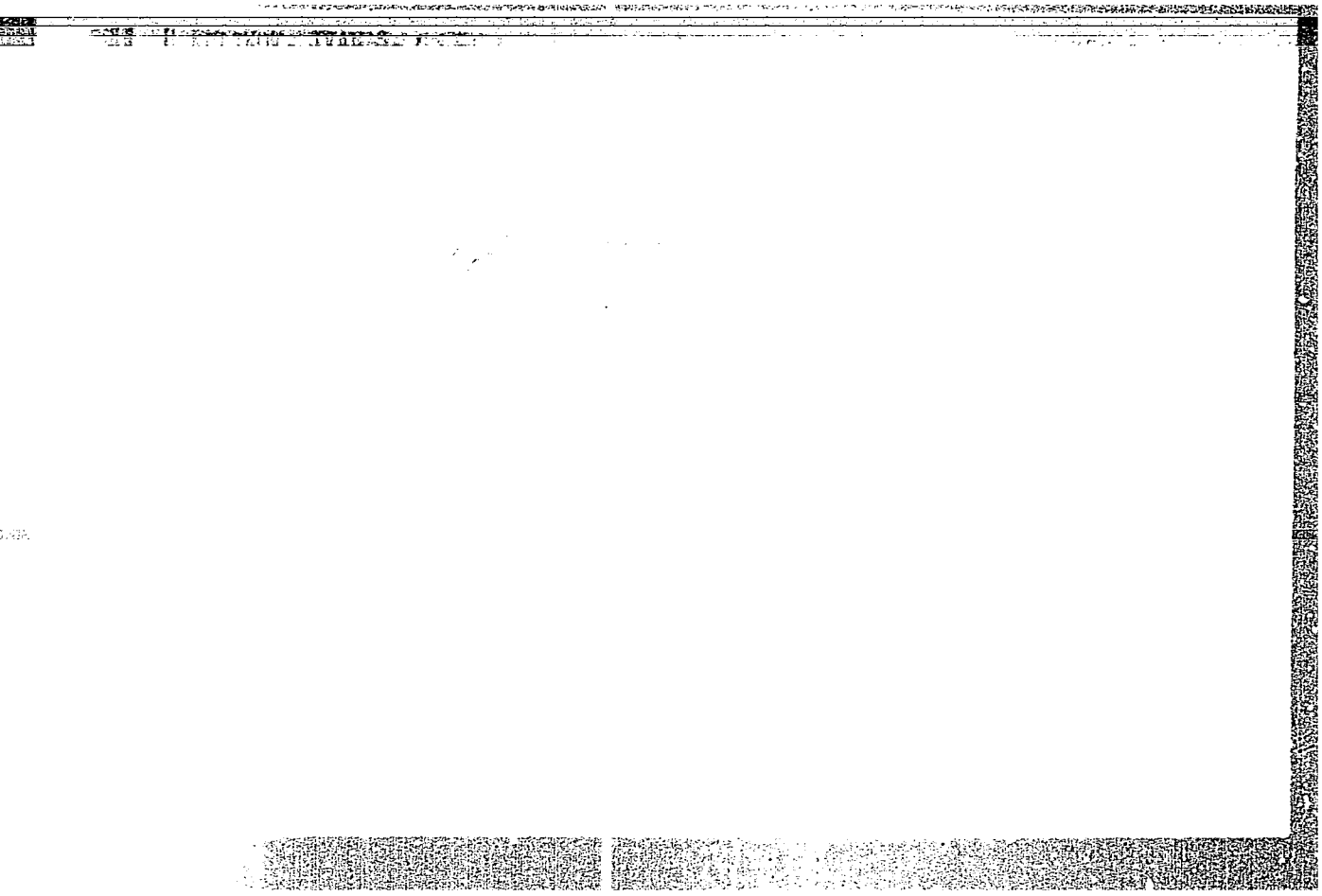


APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000927420010-6"

Kulikov I.S.

USSR/Atomic and Molecular Physics - Statistical Physics . Thermo- D-3
dynamics.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 8995

Author : Ivanov, L.I., Matveyeva, M.P., Kulikov, I.S.
Title : Concerning the Problem of the Determination of the Thermodynamic Constants of Metals and Alloys.

Orig Pub : Issledovaniya po zharoprochnym splavam. M., AN SSSR, 1956, 11-16

Abstract : Description of the construction of three instruments for the determination of the rates of evaporation of the components of solid and liquid alloys using radioactive isotopes -- based on the rate of evaporation from an open surface, the velocity of escape of vapor through a collaborated opening, and the rate of the isotopic exchange between two specimens of equal chemical composition, when one of these contains the radioactive isotope. The advantages of the third method for solid alloys is noted, when the rates of evaporation of the components are different. The authors present data obtained with the aid of the above method on the vapor pressure of iron and cobalt, on the heat of sublimation of these

Card : 1/2

USSR/Atomic and Molecular Physics - Statistical Physics. Thermo- D-3
dynamics.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 8995

metals (104.2 and 102.4 kcal/g-atom respectively), the partial pressure of iron in several alloys and the coefficient of self-diffusion of iron.

Card : 2/2

Kulikov, I. S.

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29881

Author : Samarin A. M., Kulikov I. S.
Inst : not given
Title : Thermodynamics of Desulfurization of Cast Iron

Orig Pub: Zh. neorgan. khimii, 1956, 1, No 7, 1566-1577

Abstract: From the published values of change in free energy on formation of oxides and sulfides (Δ F) were calculated F and equilibrium constants of the reactions of interaction of BaO (solid), CaO (solid), MnO (liquid) and MgO (solid) with FeS, dissolved in liquid Fe, according to the reaction MO (solid) + FeS = MS (solid) + FeO (liquid), at temperatures of 1135-1750°. In the case of cast iron the effect of the carbon content on the activity of sulfur was taken into account. The temperature dependence of residual sulfur content of cast iron is given for desulfurization by means of pure BaO, CaO and MgO.

Card : 1/2 -12-

Category: USSR / Physical Chemistry
Thermodynamics. Thermochemistry. Equilibrium. Physico-chemical analysis. Phase transitions. B-8

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 29881.

Desulfurization capacity increases with increasing radius of the cathion: under reducing conditions CaO, and especially BaO are effective desulfurization agents, whereas MgO is not; under oxidizing conditions only BaO can be used as a desulfurization agent (residual sulfur content of cast iron is of about 0.04-0.05%). To calculate the desulfurization capacity of slag it is necessary to have data concerning the activity of oxides and sulfides in fused slag. Approximate equations have been derived for the calculation of distribution coefficient of sulfur, between slag and cast iron (L_S), for slag containing CaO or Mn: $L_{S(CaO)} = -10850/T + 12.575 + 1.72 \lg (a_{(CaO)} + 0.72 \lg [\% S]$ and $L_{S(Mn)} = 10165/T - 4.37 + 1.72 \lg [\% Mn] + 0.72 [\% S]$. The role of Mn in desu,furization of cast iron increases considerably on lowering of the temperature.

Card : 2/2 -13-

KULIKOV, I.S., KOZHEVNIKOV, I. Yu.

"Some Questions of the Theory of Metallurgical Slags,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1-6, 1957

KULIKOV, I.S.

"Some Problems of Binary Silicate Systems,"
lecture given at the Fourth Conference on Steelmaking, A.A. Baikov Institute of Metallurgy, Moscow, July 1-6, 1957

SOV/137-58-11-21969

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 11, p 19 (USSR)

AUTHOR: Kulikov, I. S.

TITLE: Thermodynamics of Oxides in the $FeO-SiO_2$ and $FeO-TiO_2$ Systems (Termodinamika okislov v sistemakh $FeO-SiO_2$ i $FeO-TiO_2$)

PERIODICAL: V sb. Fiz.-khim. osnovy proiz-va stali. Moscow, AN SSSR, 1957, pp 479-487. Diskus. pp 505-512

ABSTRACT: An effort is made at thermodynamic analysis of the $FeO-SiO_2$ system with consideration of the phenomena of polymerization, the ordering of covalent bonds, and the heats of mixture. The author calculates the coefficient of FeO activity, f_{FeO}, in the system on an equation previously derived (Zhukhovitskiy, A. A., Finkel'shteyn, B. N., and Kulikov, I. S., Dokl. AN SSSR, 1951, Vol 81, p 227). The results of calculation of f_{FeO} in the 1178-3000°C interval are in satisfactory agreement with the available experimental data. The temperature dependence of the partial heats of solution of FeO for various compositions of the system are calculated from the values obtained. For the composition corresponding to the stoichiometric ratio for Fe_2SiO_4[$N_{FeO}=0.67$] the partial heat and entropy of solution are

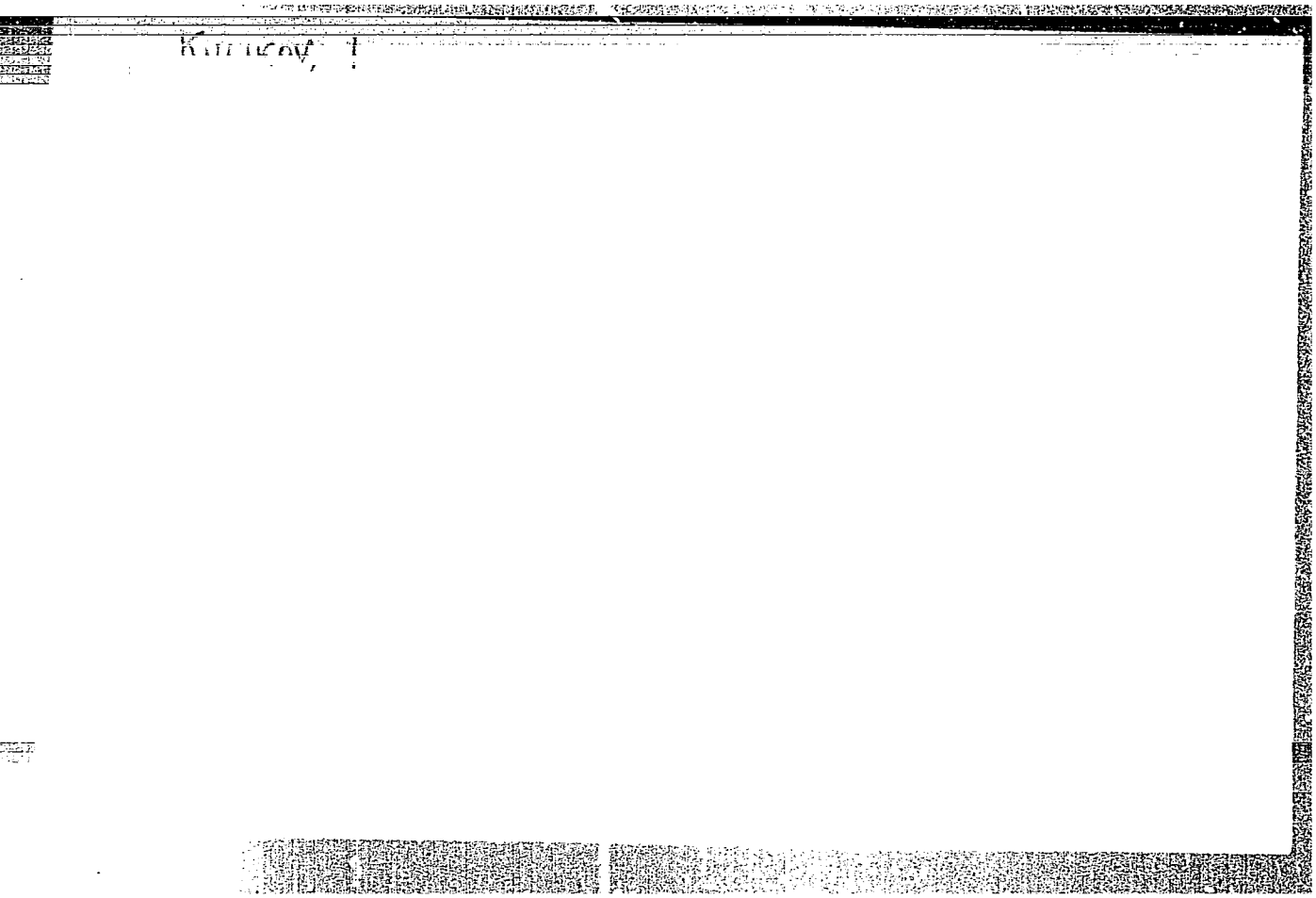
Card 1/2

Thermodynamics of Oxides in the $FeO-SiO_2$ and $FeO-TiO_2$ Systems

maximal. The values of the calculated partial heats of solution are close to the literature data. The author presents the phase diagram of the system and calculates thereon a curve for the separation into layers which circumscribes the region of separation at ~2500°C. The activity of TiO_2 in the $FeO-TiO_2$ system is calculated from the data on FeO activity. The values of f_{TiO_2} at N_{TiO_2} concentrations over 0.53 are obtained by extrapolation from $N_{TiO_2} = 1$. A graphic presentation is made of the relationship of the activities of FeO and TiO_2 upon concentration in the system at 1460°. From examination of this relationship it follows that both the components of the system have significant negative deviations over the entire interval of concentrations. The ΔF° curve of the change in free energies upon formation of a single mole in the system at 1460° and the $\Delta F^\circ - \Delta F^\circ_{ug}$ curve also illustrate significant negative deviations in the entire system. The curves in the vicinity of the Fe_2TiO_4 and $FeTiO_3$ compositions reveal minimums testifying to the stability of these compounds in liquid melts, the minimum for Fe_2TiO_4 being more distinct. The ΔF° values for the reactions of formation of either compound are calculated. Agreement with available literature data for Fe_2TiO_4 is satisfactory.

Yu. Z.

Card 2/2



KULIKOV, I. S.

24-11-30/31

AUTHORS: Kozhevnikov, I. Yu. and Kulikov, I. S. (Moscow)

TITLE: On the theory of metallurgical slags. (K teorii metallurgicheskikh shlakov).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.11, pp. 196-198 (USSR)

ABSTRACT: As regards the theory of metallurgical slags, three points of view can be distinguished, namely: consideration of the slags as solutions consisting of chemical compounds and of free oxides (Refs.1,2); consideration of the slags as pure ionic solutions (Refs.3 and 7) and consideration of the slags as solution of chemical compounds and ions into which the free oxides decompose (Refs. 8,9). So far, there is a lot of controversy and no single theory has been accepted and the people concerned with accumulation of experimental data for evolving a theory have no possibility of calculating the equilibrium of metallurgical reactions. Therefore, the authors considered it important to generalise the investigations aimed at elucidation of the physico-chemical nature of metallurgical slags and in this paper an analysis is presented of the experimental data of one of the authors and of Shvartsman (Refs.12,13) relating to the study of the thermodynamic functions of the reaction of desulphuring iron with slags of various

Card 1/2

PHASE I BOOK EXPLOITATION SOV/2646

21(5)

Kulikov, Ivan Stepanovich, Candidate of Technical Sciences

Primeneniye radioaktivnykh izotopov v metallurgii i metallofizike (Use of Radioactive Isotopes in Metallurgy and Physical Metallurgy) Moscow, 1958. 46 p. Errata slip inserted. 4,000 copies printed.

Sponsoring Agencies: USSR. Gosudarstvennyy nauchno-tekhnicheskiy komitet, and Akademiya nauk SSSR. Vsesoyuznyy institut nauchnoy i tekhnicheskoy informatsii. Otdel nauchnoy i tekhnicheskoy informatsii. Sektor metallurgicheskoy promyshlennosti.

Chief Ed.: I.P. Bardin, Academician.

PURPOSE: This book is intended for metallurgists, industrial engineers in metallurgical plants, physicists, and students studying the role of radioactive isotopes in metallurgical science.

Card 1/3

COVERAGE: The book deals with the use of radioactive isotopes in industrial metallurgical processes and investigations of the mechanisms of alloy formation, diffusion in solids, sublimation, and other phenomena. No personalities are mentioned. There are 318 references: 209 Soviet, 80 English, 1 Swiss, 1 Czech, 11 French, and 16 German.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress (TN673.K8)

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KULIKOV, I. S.

18(0) PHASE I BOOK EXPLOITATION SOV/1728

Akademiya nauk SSSR. Institut metallurgii

Sovremennyye problemy metallurgii (Modern Problems in Metallurgy) Moscow, Izd-vo AN SSSR, 1958. 640 p. 3,000 copies printed.

Resp. Ed.: A.M. Samarin, Corresponding Member, USSR Academy of Sciences; Eds. of Publishing House: V.S. Rzhevnikov, and A.M. Dermov; Tech. Ed.: T.V. Polyakova.

PURPOSE: This book is intended for scientific and technical personnel in the field of metallurgy.

COVERAGE: This is a collection of articles on certain aspects of Soviet metallurgy. The book is dedicated to Academician Ivan Pavlovich Bardin on the occasion of his 75th birthday. The book is divided into seven parts. The first part consists of two articles presenting a brief account of the biography and professional activity of the Soviet metallurgist. It includes an article by John Chipman, Nicholas Grant, and John Elliott (M.I.T., USA) describing their meeting with Bardin in Moscow and also his visit to the United States. The second part consists of three articles and deals with raw materials and fuels for the Soviet metallurgical industry. The third part represents the major portion of the book. It consists of 25 articles dealing with the various aspects of the metallurgy of pig iron and steel. The fourth part consists of two articles treating the metallurgy of nonferrous metals. The fifth part consists of three articles on the forming of metals. The sixth part consists of eight articles discussing certain aspects of physical metallurgy. The last part deals with general problems in the field of metallurgy. References are given after each article. No personalities are mentioned.

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Modern Problems in Metallurgy SOV/1728

Card 5/12

KULIKOV, I.S.

KULIKOV, I.S.

LEONIDOV, N.K.

25(5) PHASE I BOOK EXPLOITATION SOV/1497

Akademiya nauk SSSR. Institut nauchnoy i tekhnicheskoy informatsii

Metallurgiya SSSR, 1917-1957, t. 1 (Metallurgy of the USSR, 1917 - 1957, Vol. 1) Moscow, Metallurgizdat, 1958. 745 p. 3,000 copies printed.

Ed. (Title page): I. P. Bardin, Academician; Ed. (Inside book): G. V. Popova; Tech. Ed.: O. G. Bakker.

PURPOSE: The book is intended for scientific workers and engineers in metallurgical plants and in the machine-building industry. It may also be used by students in advanced courses in metallurgical vuzes.

COVERAGE: This collection of articles covers extensively practical and theoretical developments in Soviet metallurgy during the last 40 years. The material deals with the discovery and development of the major ore deposits and the growth of the metal industry in various parts of European and Asiatic USSR. Research institutes, laboratories, their location, and the names of the scientists and engineers involved are listed. Many papers contain so many references and names of various personalities that it was considered beyond the scope of the coverage of each article to list them. The authors claim that the processes, methods and theories described in this book reflect the most recent developments in Soviet metallurgy.

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Metallurgy of the USSR (Cont.) SOV/1497

of slags, thermic processes and pyrometallurgy. The electrolysis of molten salts and aqueous solutions was the object of many studies. The author states that only a part of the work currently done in nonferrous metallurgy has been mentioned in this paper. There are 331 Soviet references.

Yesin, O. A. Development of the Theory of Liquid Slags in the USSR 701
The rapid development of modern metallurgy called for a more thorough knowledge of the composition, behavior, and reaction of molten slags in metallurgical processes. Starting with this premise the author goes on to relate the various theories developed and experiments performed by Soviet metallurgists. The molecular theory is said to have dominated the thinking of many outstanding Soviet scientists such as Baykov, Sokolov, Pavlov, Grum Grzhimaylo, et al. This theory has been complemented by the introduction of the ionic concept, and later, by the ionic theory of liquid slags. Numerous formulas, graphs, and equations explain and confirm the fundamentals of these theories. The ionic theory was successfully applied in the electrolysis of molten metals to extract various elements. The author, in cooperation with Dzyev,

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Metallurgy of the USSR (Cont.) SOV/1497

Chermak, and Lyumkis, developed a method based on this theory for the recovery of nickel and cobalt from molten slags. There are 91 references, 85 Soviet and 1 English.

Kulikov, I.S. The Use of Radioactive Isotopes 789
The use of radioactive isotopes in Soviet metallurgy dates back to 1948. The commercial production of mass spectrometers made possible wide application of this method. Gamma rays are used to measure the thickness of metals and to measure the thickness of metallic coatings on sheet metal. Radioactive isotopes are used to measure the density of liquid phases and suspensions. The radiation of zinc with gamma rays Co^{60} is said to increase its hardness. In 1952 Bogdanov and other scientists developed a method of analysis based on the reflection and scattering of gamma particles. A modification of this method may be used to analyze binary compounds. There are 49 Soviet references.

AVAILABLE: Library of Congress

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Card 21/21

KULIKOV, I.S., kand.tekhn.nauk

Present-day state of the metallurgical slag theory. Izv.vys.ucheb. zav.; chern.met. no.10:63-67 O '58. (MIRA 11:12)

1. Institut metallurgii imeni A.A. Baykova.
(Slag) (Ions)

KULIKOV, I.S.

Regarding modern theory of the Constitution of Metallurgical alloys

report submitted for the 5th Physical Chemical Conference on Steel Production.

MOSCOW — 30 JUN 1959

24(8) PHASE I BOOK EXPLOITATION SOV/2117

Soveshchaniye po eksperimental'noy tekhnike i metodam vysokotemperaturnykh issledovaniy, 1956

Eksperimental'naya tekhnika i metody issledovaniy pri vysokikh temperaturakh; trudy soveshchaniya (Experimental Techniques and Methods of Investigation at High Temperatures; Transactions of the Conference on Experimental Techniques and Methods of Investigation at High Temperatures) Moscow, AN SSSR, 1959. 789 p. (Series: Akademiya nauk SSSR. Institut metallurgii. Komissiya po fiziko-khimicheskim osnovam proizvodstva stali) 2,200 copies printed.

Resp. Ed.: A.M. Samarin, Corresponding Member, USSR Academy of Sciences; Ed. of Publishing House: A.L. Bankvitser.

PURPOSE: This book is intended for: metallurgists and metallurgical engineers.

COVERAGE: This collection of scientific papers is divided into six parts: 1) thermodynamic activity and kinetics of high-temperature processes 2) constitution diagram studies 3) physical properties of liquid metals and slags 4) new analytical methods and production of pure metals 5) pyrometry, and 6) general questions. For more specific coverage, see Table of Contents.

5

BAZILEVICH, Sergey Vladimirovich; LAZAREV, Boris Leonidovich; STARIKOV, Modest Andreyevich; GOLOSKOV, Boris Viktorovich; KULIKOV, I.S., kand.tekhn.nauk, retsenzent; KHODAK, L.Z., red.; CHAPAYKINA, F.K., red.izd-va; MATLYUK, R.M., tekhn.red.

[Methods for experimental investigation of the blast-furnace process] Metody eksperimental'nogo issledovaniia domennogo protsessa. Sverdlovsk, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii. Sverdlovskoe otd-nie, 1960. 254 p. (MIRA 14:3)
(Blast furnaces) (Cast iron--Metallurgy)

PHASE I BOOK EXPLOITATION . SOV/4558
SOV/10-3-5

Akademiya nauk SSSR. Institut metallurgii

Metallurgiya, metallovedeniye, fiziko-khimicheskiye metody issledovaniya (Physicochemical Research Methods in Metallurgy and Metal Science) Moscow, Izd-vo AN SSSR, 1960. 251 p. (Series: Its: Trudy, vyp. 5) Errata slip inserted. 2,800 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A.A. Baykova.

Resp. Ed.: I.P. Bardin, Academician (Deceased); Ed. of Publishing House: V.A. Klimov; Tech. Ed.: T.P. Polenova.

PURPOSE: This collection of articles is intended for metallurgists and metal researchers.

COVERAGE: The collection contains articles on metallurgy, metal science, and physicochemical research methods. Separate articles discuss the structure and properties of some metals and alloys. The effect of cold treatment and inclusions on the properties of alloys are analyzed, and instruments and

Kulikov, I.S.

KULIKOV, I.S.; SAMARIN, A.M.

Investigating sulfur absorbing properties of magnesium and calcium oxides. Trudy Inst.met. no.5:16-21 '60. (MIRA 13:6)
(Magnesium oxide)
(Calcium oxide)
(Desulfuration)

ZHMOYDIN, G.I.(Moskva); KULIKOV, I.S.(Moskva)

Physical properties of blast furnace slags and the effect on them of magnesium oxide, sulfur, manganese and iron. Izv. AN SSSR. Otd. tekh. nauk. Met.i topl. no.5:25-32 S-O '60. (MIRA 13:11)

(Slag--Testing) (Viscosimetry)

BARDIN, I.P., akad. [deceased]; KULIKOV, I.S; ZUDIN, V.M.; TSYLEV, L.M.; SOKOLOV, G.A.; GALATONOV, A.L.; BABARYKIN, N.N.; GUL'TYAY, I.I.

Making low-sulfur cast iron at the Magnitogorsk Combine. Stal' 20 no.10:865-869 O '60. (MIRA 13:9)
(Magnitogorsk--Blast furnaces) (Cast iron--Metallurgy)

KULIKOV, I. S.

Doc Tech Sci - (diss) "Desulfuration of cast iron." Moscow, 1961. 25 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Labor Red Banner Inst of Steel imeni I. V. Stalin); 180 copies; price not given; list of author's works on pp 22-25; (KL, 7-61 sup, 229)

KULIKOV, I.S. (Moskva)

Kinetics of desulfuration of pig iron by slags. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.2:20-30 Mr-Ap '61. (MIRA 14:4)

(Iron--Metallurgy)
(Desulfuration)

PANOV, A.S. (Moskva); KULIKOV, I.S. (Moskva); TSYLEV, L.M. (Moskva)

Viscosity of molten calcium oxide - silica - calcium sulfide
Izv. AN. SSSR. Otd. tekh. nauk. Met. i topl. no.3:25-30
My-Je '61. (MIRA 14:7)
(Viscosimetry) (Slag--Testing)

ZUDIN, V.M.; BABARYKIN, N.N.; GALATONOV, A.L.; KULIKOV, I.S.

Effect of magnesium on the desulfurizing properties of blast furnace slags. Stal' 21 no.5:385-391 My '61. (MIRA 14:5)

1. Magnitogorskiy kombinat i Institut metallurgii AN SSSR.
(Desulfuration)

KULIKOV, Ivan Stepanovich; MITIN, V.I., red.; KARASEV, A.I., tekhn. red.

[Desulfuration of cast iron] Desul'furatsiia chuguna. Moskva, Moskva, Metallurgizdat, 1962. 305 p. (MIRA 15:7)
(Cast iron--Metallurgy)
(Desulfuration)

PANOV, A.S. (Moskva); KULIKOV, I.S. (Moskva); TSYLEV, L.M. (Moskva)

Solubility of calcium sulfide in calcium oxide - magnesium oxide - silica melts. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.1:42-45 Ja-F '62. (MIRA 15:2)
(Metals--Sulfur content)
(Calcium sulfide)
(Solubility)

PANOV, A.S. (Moskva); KULIKOV, I.S. (Moskva); TSYLEV, L.M. (Moskva)

Effect of calcium sulfide on the viscosity of alkaline earth metal aluminosilicate melts. Izv. AN SSSR. Otd. tekh. nauk. Met. i topl. no.3:27-32 My-Je '62. (MIRA 15:6)
(Aluminosilicates) (Viscosimetry)

KULIKOV, I.S. (Moskva)

Thermodynamic investigation of sulfur behavior during open-hearth furnace smelting. Izv.AN SSSR. Otd.tekh.nauk. Met.i topl. no.4: 20-30 Jl-Ag '62. (MIRA 15:8)
(Open-hearth process) (Sulfuration)

PANOV, A.S.(Moskva); DANYUSHCHENKOV, I.A.(Moskva); KULIKOV, I.S.(Moskva); TSYLEV, L.M.(Moskva)

Effect of magnesium and barium oxides on the viscosity of silicate melts. Izv. AN SSSR.Otd.tekh.nauk. Met. i topl. no.5:37-42 S-O '62. (MIRA 15:10)

(Alkaline earth compounds) (Viscosity)

KULIKOV, I.S.

Iron-base solutions. Trudy Inst.met. no.10:3-40 '62. (MIRA 15:8)
(Iron alloys)

KULIKOV, I.S.

Theory of binary silicate systems. Trudy Inst.met. no.10:41-62 '62. (MIRA 15:8)

(Silicates)

IANOV, A.S.; KULIKOV, I.D.; [illegible], L.M.

Surface tension and density of [illegible] melts.
Zhur. fiz. khim. 36 no.6:1358-1361 [illegible] (MIRA 17:8)

ZLOBINSKIY, Boris Mikhaylovich; NEMTSOV, Nikolay Stepanovich; KULIKOV, I.S., red.; KHUTORSKAYA, Ye.S., red. izd-va; OBUKHOVSKAYA, G.P., tekhn. red.

[Radioactive isotopes in blast-furnace practice; methods of use and safety problems] Radioaktivnye izotopy v domennom proizvodstve; metodika primeneniia i voprosy bezopasnosti. Moskva, Metallurgizdat, 1963. 94 p. (MIRA 16:6)
(Blast furnaces)
(Radioisotopes--Industrial applications)

ZHMOYDIN, G.I. (Moskva); KULIKOV, I.S. (Moskva)

Sulfur distribution between carbon-saturated iron and molten calcium oxide - alumina. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.3:70-75 My-Je '63. (MIRA 16:7)
(Iron--Metallurgy) (Desulfuration) (Slag)

KULIKOV, I.S.; ZHMOUDIN, G.I.

Diagrams of the desulfurating ability and the viscosity of blast furnace slags. Trudy Inst. met. no.12:13-15 '63.
(MIRA 16:6)

(Slag—Testing)
(Desulfuration)
(Viscosity)

PANOV, A.S.; KULIKOV, I.S.; TSYLEV, L.M.

Effect of calcium sulfide on the surface tension and density of $CaO - MgO - SiO_2$ melts. Zhur.fiz.khim. 37 no.1:169-173 Ja '63. (MIRA 17:3)

1. Institut metallurgii imeni Baykova.

KU.[illegible], L.S.; ZHUKOV, G.I.

Activity of calcium oxide and sulfides in slag according to data on sulfur vaporization from slag and on the distribution between the cast iron and slag. Trudy Inst. met. no.14: 3-12 '63 (MIRA 17:8)

KULIKOV, I.S. (Moskva)

Theory of the sintering process. Izv. AN SSSR. Met. i gor. dela no.5: 10-15 S-O '64. (MIRA 18:1)

KULIKOV, I.S., doktor tekhn. nauk, otv. red.

[Iron reduction and smelting processes] Protsessy vosstanovleniia i plavleniia zheleza. Moskva, Nauka, 1965. 158 p. (MIRA 18:11)

1. Moscow. Institut metallurgii.

KULIKOV, I.T. (Moskva), KOMISSAROV, G.M. (Moskva)

Thermodynamic analysis of the behavior of sulfur during the sintering of iron ores. Izv. AN SSSR. Met. no.1:3-10 Ja-F '65. (MIRA 18:5)

MURATOV, A.M. (Moskva); KULIKOV, I.S. (Moskva)

Viscosity of melts in the system SiO_2 – Al_2O_3 – CaO – MgO – CaS.
Izv. AN SSSR. Met. no.4:57-62 Jl-Ag '65.
(MIRA 18:8)

KOMISSAROV, G.M.; KULIKOV, I.S.

Behavior of sulfur during sintering. Izv. vys. ucheb. zav.; chern. met. 8 no.7:20-22 '65. (MIRA 18:7)

1. Institut metallurgii im. Baykova, Moskva.

KOMISSAROV, G.M.; KULIKOV, I.S.

Desulfuration of iron ores with their treatment in open air.
Izv. vys. ucheb. zav.; chern. met. 8 no.9:28-35 '65.
(MIRA 18:9)

1. Institut metallurgii im. Baykova.

KULIKOV, I.V., starshiy prepodavatel'

Improving the local heard in Moldavia. Zhivotnovodstvo 21 no.2:49-52 F '59. (MIRA 12:3)

1. Kishinevskiy sel'skokhozyaystvennyy institut imeni M.V.Frunze.
(Moldavia--Dairy cattle)

AVRASIN, Ya.D., kandidat tekhnicheskikh nauk; BERG, P.P., professor, doktor tekhnicheskikh nauk, BERNSHTEYN, M.L., kandidat tekhnicheskikh nauk; GEMEROZOV, P.A., starshiy nauchnyy sotrudnik; GLINER, B.M., inzhener; DAVIDOVSKAYA, Ye.A., kandidat tekhnicheskikh nauk; YELCHIN, P.M., inzhener; YEREMIN, N.I., kandidat fiziko-matematicheskikh nauk; IVANOV, D.P., kandidat tekhnicheskikh nauk; KNOROZ, L.I., inzhener; KOBRIN, M.M., kandidat tekhnicheskikh nauk; KORITSKIY, V.G., dotsent; KROTKOV, D.V., inzhener; KUDRYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk; KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEPETOV, V.A., kandidat tekhnicheskikh nauk; LIKINA, A.F., inzhener; MATVEYEV, A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk; PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PTITSYN, V.I., inzhener [deceased]; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk, RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor, doktor khimicheskikh nauk; SIGOLAYEV, S.Ya., kandidat tekhnicheskikh nauk; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk, SUL'KIN, A.G., inzhener; TUTOV, I.Ye., kandidat tekhnicheskikh nauk, KHRUSHCHOV, M.M., professor, doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk; SHAROV, M.Ya., inzhener; SHERMAN, Ya.I., dotsent; SHMELEV, B.A., kandidat tekhnicheskikh nauk; YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', E.A., doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's reference book] Spravochnik mashinostroitelia; v shesti tomakh. izd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.toma E.A.Satel'. Izd. 2-oe, ispr. i dop.) 1956. 500 p. (MLRA 9:8)
(Machinery--Construction)

KULIKOV, I.V., inzh.; MUKHOLOV, B.M., inzh.

Using pneumatic sinker drills in boring blasting holes in stone quarries. Stroi. mat. 5 no.5:19-21 My '59. (MIRA 12:8)
(Boring machinery)

Tolerances and gauges in woodworking. Moskva, Goslesbumizdat, 1952. 382 p.
(54-18317)

TJ1166.K8

KULIKOV, I. V.

"Investigation of the Principal Factors Governing Interchangeability in Woodworking." Dr Tech Sci, Moscow Forestry Engineering Inst, Min Higher Education, Moscow, 1954. (KL, No 2, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (12)
SO: Sum. No. 556, 24 Jun 55

KULIKOV, Ivan Vasil'yevich, kandidat tekhnicheskikh nauk; CHULITSKIY, N.N., professor, doktor tekhnicheskikh nauk, redaktor; DASHKOVA, Z.F., redaktor; SHITS, V.P., tekhnicheskiy redaktor.

[Principles of interchangeability in the woodworking industry] Osnovy vzaimozameniaemosti v derevoobrabotke. Pod red. N.N.Chulitskogo. Moskva, Goslesbumizdat, 1955.286 p. (MLRA 9:5)
(Wood working industries) (Interchangeable mechanism)

KULIKOV, I.V., kand.tekhn.nauk

Strength of glued tenon joints under working conditions. Der.prom. 7 no.3:10-13 Mr '58. (MIRA 11:4)
(Joinery)

AFANAS'YEVICH, Pavel Semenovich, kand. tekhn. nauk; KULIKOV, I.V., kand. tekhn. nauk, nauchnyy red.; KYCHEK, T.I., red.; TOKER, A.M., tekhn. red.

[Woodworking machinery] Derevoobrabatyvaiushchie stanki. 2. izd., perer. i dop. Moskva, Vses. uchebno-pedagog. izd-vo Proftekhizdat, 1961. 403 p. (MIRA 15:2)
(Woodworking machinery)

AFANAS'YEV, Pavel Semenovich, kand. tekhn. nauk; KULIKOV, I.V., kand. tekhn. nauk, nauchn. red.; KASHANI, L.A., red.; DORODNOVA, L.A., tekhn. red.

[Woodworking machinery--Design and construction] Derevo-obrabatyvaiushchie stanki. 3. izd., ispr. Moskva, Prof-tekhizdat, 1963. 415 p. (MIRA 16:12)
(Woodworking machinery--Design and construction)

IVANKOV, Petr Timofeyevich; KULIKOV, I.V., retsenzent; KUZNETSOV, M.A., retsenzent; PLESKO, Ye.P., red. izd-va; VDOVINA, V.M., tekhn. red.

[Technical measurements and the fundamentals of metrology] Tekhnicheskie izmereniia s osnovami metrologii. Moskva, Goslesbumizdat, 1963. 256 p. (MIRA 16:7)
(Mensuration) (Measuring instruments)

KULIKOV, Ivan Vladimirovich; NEMANOVA, G.F., ved. red.

[Drilling prospecting boreholes with sinking pneumatic-percussion drills] Burenie geologorazvedochnykh skva-zhin pogruzhnymi pnevmoudarnikami. Moskva, Nedra, 1964. 84 p. (MIRA 18:3)

KULIKOV4K8A8 600

1. KULIKOV, K.A.

2. USSR (600)

"Determining the latitude and time by reflecting zenith tubes," Astron.Zhur., 18, Nos 4-5, 1941. State astronomical institute imeni Shternberg, Moscow.

9. [redacted] Report U-1518, 23 Oct 1951

KULIKOV, K. A.

"Determination of Permanent Nutation by Observations Made With a Pulkovo Large Zenith Telescope." Sub 12 Feb 47, Moscow Order of Lenin State U imeni M. V. Lomonosov

Dissertations presented for degrees in science and engineering in Moscow in 1947

SO: Sum No. 457, 18 Apr 55

KULIKOV, K. A.

PA 30/49T87

USSR/Physics Jan/Feb 49
Astronomy
Telescopes

"Determinations of Constant Aberration of Observations With the Great Pulkovo Zenith-Telescope," K. A. Kulikov, State Astr Inst imeni P. K. Shternberg, 5 pp

"Astron Zhur" Vol XXVI, No 1

Presents some results of observations made from 1915 to 1929.

[redacted] 30/49T87

KULIKOV, K. A.

"Motion of the Poles of the Earth and the Variation of Latitude," Uspekhi Astron. Nauk, Vol. 5, AS USSR, 1950

KULIKOV, K. A.

USSR/Astronomy - Bibliography, Reviews Jan/Feb 52

"Book Reviews," K. A. Kulikov, S. N. Korytnikov

"Astron Zhur" Vol XXIX, No 1, pp 103-110

Reviews I. F. Polak's "Course of General Astronomy" 6th ed, revised, 1951, 387 pp, manual for universities, and Yu. G. Perel's "Outstanding Russian Astronomers" edited by S. N. Blazhko, Corr Mem, Acad Sci USSR 1951, 216 pp, history of development of astronomy in Russia.

202T13

KULIKOV, K.A.

Values of the solar parallax and the constant of aberration.
Astron. zhur. 31 no.6:550-555 N-D '54. (MLRA 8:1)

1. Gosudarstvennyy astron.institut imeni P.K.Shternberga.
(Parallax--Sun) (Aberration)

KULIKOV, K.A., professor.

Movement of the earth's poles along its surface. Priroda 44 no.11: 13-19 N '55. (MLRA 9:1)
(Latitude variation)

KULIKOV, K.A.; FESHKOV, V.G., akademik, redaktor; MESHKOVA, T.S., redaktor; MAKUNI, Ye.V. tekhnicheskiy redaktor.

[Movement of the earth's poles] Dvizhenie poliusov zemli. Moskva, Izd-vo Akademii nauk SSSR, 1956. 79 p. (MLRA 9:5)
(Latitude variation)

This publication contains the results of measurements (of the movement of the earth's poles) taken from 1891 through 1955.
D 550023

KULIKOV, Konstantin Alekseyevich; REZNIKOVSKIY, P.T., redaktor; SAMSONENKO, L.V., redaktor; AKHLAMOV, S.N., tekhnicheskiy redaktor

[The fundamental constants of astronomy] Fundamental'nye postoiannye astronomii. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1956. 340 p. (MLRA 9:7)
(Astronomy)

KULIKOV, Konstantin Alekseyevich; SAMSONENKO, L.V., red.; KOL'CHENKO, T.N., tekhn.red.

[Astronomy in the service of the economy] Astronomiia na sluzhbe narodnogo khoziaistva. Moskva, Gos. izd-vo tekhniko-teoret. lit-ry, 1957. 77 p. (Populiarnye lektsii po astronomii, no.7) (MIRA 11:4)
(Astronomy, Spherical and practical)

KULIKOV, K.A.

"Motion of heavenly bodies" by IU.A. Riabov. Reviewed by K.A. Kulikov. Astron.zhur. 34 no.3:499-500 My-Je '57. (MLRA 10:7)

(Mechanics, Celestial) (Ryabov, Yu.A.)

KULIKOV, K.A., professor.

Coordinates of heavenly bodies. Priroda 46 no.5:31-38 My '57.
(MLRA 10:6)

1. Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Coordinates) (Stars) (Planets)

KULIKOV, K.A., professor.

Erroneous explanation of the shift of glaciation regions.
Priroda 46 no.7:127 Jl '57. (MIRA 10:8)

1.Moskovskiy gosudarstvennyy universitet im. M.V. Lomonosova.
(Cosmogony, Glacial)

AUTHOR: Kulikov, K.A., Professor 26-58-6-4/56

TITLE: Astronomy and the Study of the Earth's Interior Layers (Astronomiya i izucheniye glubinnykh sloyev zemli)

PERIODICAL: Priroda, 1958, Nr 6, p 19-26 (USSR)

ABSTRACT: The article deals with the problem of determining the substance of the earth's core. Since seismology does not suffice, astronomy and gravimetry are now being used. Astronomy permits observation of the latitudinal changes of certain places on the earth's surface and study of the earth's inner structure. Gravimetry, which inquires into the laws of the distribution of gravity, also offers material to solve the problem. The earth's rotation and the movement of the axis make it possible to judge the condition of the internal substance. Observations with gravimeters and horizontal pendula have been extensively made by scientists in many countries, but results so far do not suffice to solve the problem of the mechanical properties of the earth's core. There have been various hypotheses on the interior structure of the earth, but the theoretical calculations made by scientists did not agree with the facts of seismic observations. The author names Soviet scientist M.S. Molodenskiy, who obtained very encouraging results with his

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Moscow State U.

calculations, but had to admit that no decisive conclusions could be made. The observations with gravimeters and horizontal pendula, which are being conducted during the International Geophysical Year, may help to solve the problem. An attempt by Soviet scientists to base their calculations on the nutational movement of the earth's pole and on comparing them with the actual rotations of the earth, led to the assumption that the earth's core is liquid.

Card 2/2 There are 5 figures, 1 table and 1 Soviet reference.

1. Astronomy-USSR 2. Gravimetric analysis-Equipment

BAZYKIN, V.V.; BRONSHTEN, V.A.; VORONTSOV-VEL'YAMINOV, B.A.; DAGAYEV, M.M.; DMITRIYEV, L.S.; IZOTOV, A.A.; KULIKOV, K.A.; KUNITSKIY, R.V.; MARTYNOV, D.Ya.; MINCHENKOV, Ye.Ya.; MOGILKO, A.D.; PEUL', Yu.G.; POPOV, P.I.; REZNIKOV, L.I.; SVETLOV, R.I.; SEMAKIN, M.K.; SHISTOVSKIY, K.N.

Mikhail Evgen'evich Nabokov; obituary. Fiz. v shkole 20 no.3:110-111 My-Je '60. (MIRA 13:11)
(Nabokov, Mikhail Evgen'evich, 1887-1960)

PEREL', Yu.G.; POPOV, P.I.; MARTYNOV, D.Ya.; KUNITSKIY, R.V.;
VORONTSOV-VEL'YAMINOV, B.A.; BAZYKIN, V.V.; KULIKOV, K.A.;
SHISTOVSKIY, K.N.; TSVETOV, R.I.; BRONSHTEN, V.A.; DAGAYEV, M.M.;
MOGILKO, A.D.; SEMAKIN, N.K.; DMITRIYEV, L.S.; IZOTOV, A.A.

Mihail Evgen'evich Nabokov; obituray. Buil.VAGO no.28:60-62
'60. (MIRA 14:6)
(Nabokov, Mikhail Evgen'evich, 1887-1960

KULIKOV, Konstantin Alekseyevich; BAKULIN, P.I., red.; PONOMAREV, D.N., red.; MURASHOVA, N.Ya., tekhn. red.

[Course in spherical astronomy] Kurs sfericheskoi astronomii. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1961. 174 p. (MIRA 14:8)

(Astronomy, Spherical and practical)

KULIKOV, K.A., prof.

Variation of geographical longitudes. Priroda 50 no.11:53-59 N '61. (MIRA 14:10)
(Longitude)

PHASE I BOOK EXPLOITATION SOV/6219

Kulikov, Konstantin Alekseyevich

Dvizheniye polyusov Zemli (Movement of the Earth's Poles) 2d ed., rev. and enl., Moscow, Izd-vo AN SSSR, 1962. 84 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya)

Ed. of Publishing House: Ye. M. Klyaus; Tech. Ed.: T. P. Polenova.

PURPOSE: The book is intended for the general reader.

COVERAGE: The book is a popular presentation of basic methods used to study the movement of the Earth's poles and the concomitant variations in latitudes. The theoretical and practical importance of the discipline for the solution of various problems, as for example the structure of the Earth's interior, is reviewed.

TABLE OF CONTENTS:

Card 1/[illegible]

S/026/62/000/006/002/004
D045/D114

AUTHOR: Kulikov, K.A., Professor

TITLE: A view of the starry sky from the Moon

PERIODICAL: Priroda, no. 6, 1962, 29-36

TEXT: This popular article deals with some very well-known facts about the Moon, particularly the appearance of the stars, Sun and Earth on the lunar sky, with a view to mentally preparing Soviet astronauts for a Moon landing which, in the author's opinion, will take place in the imminent future. On the lunar sky, for example, all the stars will not twinkle and some will move faster, the Earth's disk will be 13.7 times larger and 6-7 times brighter than the lunar disk as seen from the Earth, solar phenomena will be clearly depicted, and frequent solar eclipses will occur which will cause the temperature on the Moon to drop by 220°C. For intercommunication purposes the astronauts should be equipped with miniature radio transmitters and

Card 1/2

A view of the starry sky from the Moon

receivers, while portable rocket devices will allow them to cover large distances quickly and without effort. The astronauts must realize that they will not see any trace of life and that the lunar relief will differ fundamentally from the Earth's relief. The entire lunar surface, according to investigations conducted by Academician of the AS UkrSSR, N.P. Barabashov, will be covered with crushed volcanic tuffaceous rocks which badly conduct heat and account for a fairly constant temperature at a depth of 0.5-1 m, in spite of the strong temperature variations on the Moon's surface. Large quantities of water may be found at some depth below the surface. There are 6 figures.

ASSOCIATION: Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga (State Astronomical Institute im. P.K.Shternberg), Moscow.

KULIKOV, Konstantin Alekseyevi. Prinimal uchastiye ZHONGOLOVICH, I.D.; PONOMAREV, D.N., red.; MURASHOVA, N.Ya., tekhn. red.

[Latitude and longitude variation] Izmeniaemost' shirot i dolgot. Moskva, Gos. izd-vo fiziko-matem. lit-ry, 1962. 400 p. (MIRA 15:5)

(Latitude) (Longitude)

KULIKOV, K.A.

Starlit sky viewed from the moon. Elot tud 18 no.16:501-503 21 Ap '63.

ACCESSION NR: AP4040611 S/0026/64/000/006/0050/0055

AUTHOR: Kulikov, K. A. (Professor)

TITLE: What we can observe on the moon

SOURCE: Priroda, no. 6, 1964, 50-55

TOPIC TAGS: astronomy, moon, lunar surface, stellar astronomy, lunar observatory

ABSTRACT: The author repeats the popular arguments justifying a flight to the moon and presents a discussion of the meteor and volcanic hypotheses of origin of the lunar surface. The author's principal theme is the advantages for modern astronomy which would result from establishment of a lunar observatory. Various unsolved problems in astronomy and astrophysics are mentioned briefly, it being pointed out that it is the barrier of the earth's atmosphere, which transmits so little of the spectrum, which is responsible for the difficulty in solving these problems. The article points out that a lunar observatory could assist in precisely determining the intensity and distribution of the lines of the entire Lyman region of the spectrum. This will make it possible to judge the physical conditions, hydrogen content and temperature at various places in the solar corona and chromosphere and physical processes in the interplanetary medium, as well as

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ACCESSION NR: AP4040611

supply information on the earth's ionosphere and atmosphere. The general discussion continues by noting that it would be possible to detect still unidentified elements on the sun. Lunar astronomical observations could be directed to observation and interpretation of the far infrared region of the spectra of such objects as planets and cold stars. Much new information could be found concerning the long-wave radio emission of radio sources and galaxies, whose spectra contain information on soft relativistic electrons, and gamma- and hard X-radiation forming from relativistic particles and gamma quanta from the sun, stars and other radio sources. None of this information can be obtained through the atmosphere blanketing the earth. Special apparatus on the lunar surface could observe solar corpuscular streams directly. Planetary studies would be greatly advanced by investigations impossible from the earth's surface, such as spectroscopic studies of the water vapor and oxygen on Mars, or simple optical observations of details on the sun or Mars. It would be possible, unlike now, to make detailed studies of galaxies, diffuse nebulae and the outer boundaries of the Milky Way. The present-day method used for checking the Einstein theory could be greatly improved if observations from the lunar surface were possible. Orig. art. has: 7 figures.

ASSOCIATION: Moskovskiy gosudarstvennyy universitet imeni M. V. Lomonosova (Moscow State University)

Card 2/3

ACCESSION NR: AP4040611

SUBMITTED: 00	DATE ACQ: 26Jun64	ENCL: 00
SUB CODE: AA	NO REF SOV: 000	OTHER: 000

Card 3/3

KULIKOV, Konstantin Alekseyevich; FESENKOV, V.G., akademik, otv. red.

[The first astronauts on the moon; description of the moon and the astronomical phenomena observable from its surface] Pervye kosmonavty na Lune; opisanie Luny i astronomicheskikh iavlenii, nabliudaemykh s ee poverkhnosti. Moskva, Nauka, 1965. 188 p. (MIRA 18:4)

KULIKOV, K.A.

System of astronomical constants. Astron. zhur. 42 no.3:666-668 My-Je '65. (MIRA 18:5)

1. Gosudarstvennyy astronomicheskiy institut im. P.K.Shternberga.

KULIKOV, K.A., doktor fiz.-matem.nauk, prof., nauchn.red.;
SHUSTOVA, I.B., red.

[Astronomy, oldest of all the sciences] Astronomiia - drevneishaia iz nauk. Moskva, Znanie, 1965. 37 p. (Narodnyi universitet: Estestvenno-nauchnyi fakul'tet, no.10)
(MIRA 18:10)

KULIKOV, K.A., doktor fiz.-matem. nauk, prof., nauchn. red.;
SHUSTOVA, I.B., red.

[The universe around us] Vselennaia vokrug nas. Moskva, Znanie, 1965. 151 p. (Narodnyi universitet: Estestvenno-nauchnyi fakul'tet, no.12) (MIRA 18:12)

14-57-7-15365

Translation from: Referativnyy zhurnal, Geografiya, 1957, Nr 7, pp 181-182 (USSR)

AUTHOR: Kulikov, K. I.

TITLE: Residential Architecture on the Don River (Arkhitekturnyy obraz narodnogo zhilishcha Dona)

PERIODICAL: Tr. Novocherkas. politekhn. in-ta, 1956, Nr 33/47, pp 191-203

ABSTRACT: The author distinguishes four distinct types of dwellings in the Kamensk and Rostov Oblasts, and, to a lesser extent, in the Voronezh and Stalingrad Oblasts and the Stavropol' and Krasnodar Krays. These variations were caused by different natural and climatic conditions, historical, social, and economic factors, and the popular architecture of adjoining districts. The first type of dwellings, with its characteristic decorative objects of the Central

Card 1/2

Residential Architecture on the Don River (Cont.)

Russian region, is most common in the northern sections of the Don River district which borders on the Voronezh and Stalingrad Oblasts. It is found in the zone of stanitsas Mal'chevskaya, Kashary, and Chernyshevskaya. The second type preserves feature characteristic of Ukrainian cottages and is very common in the western regions that border on the Ukrainian SSR, in the zone of stations and villages of Chertkovo, Krivorozh'ye, Litvinovka, and Likhovskaya. Further to the south the houses are those of the mining settlements in the Donbas. The third type of dwelling is chiefly found in the Don River valley and the areas on its right bank. Here the kuren', basic dwelling unit of the Don region, is very common. The fourth type includes dwellings in the southern and eastern districts along the left bank of the river (the trans-Don region, Sal'sk, and Manych steppes). The architecture of these regions shows affiliations with the architecture of the central steppe districts.

Card 2/2 O. K.

KULIKOV, K.K., mashinist

Simplification of a relay-type protective network. Elek.i tepl.tiaga 5 no.11:38 N '61. (MIRA 14:11)

1. Depo Usol'skaya Sverdlovskoy dorogi.
(Electric locomotives)

KULIKOV, K.K., mashinist

Ways to control a train with damaged valve coils of the PKG-305V group switch. Elek. i tepl. tiaga no.6:38 Je '62. (MIRA 15:7)

1. Depo Usol'skaya Sverdlovskoy dorogi.
(Electric locomotives) (Railroads--Brakes)
(Electric switchgear)

S/181/63/005/001/052/064
B104/B186

AUTHORS: Buryak, Ye. V., Kaufman, S. A., and Kulikov, K. M.

TITLE: Hole trapping cross section of singly charged gold ions in germanium

PERIODICAL: Fizika tverdogo tela, v. 5, no. 1, 1963, 345-347

TEXT: The majority carrier lifetime τ was determined from the production-recombination noise in p-type germanium single crystals alloyed with gold and antimony. The latter was added to compensate uncontrolled acceptors. The concentration of gold was $2 \cdot 10^{15}$ cm^{-3} and that of the recombination centers was $\simeq 10^{14}$ cm^{-3}. According to L. Johnson, H. Levinstein (Phys. Rev., 117, 1191, 1960), T. P. Vogl, I. R. Hansen, and M. Garbuny (J. Opt. Soc. Am., 51, no. 1, 70, 1961) the following equation holds for the square of the voltage of produotion-recombination noise:

$$U_{\text{ш}}^{2\prime} = \frac{4U^2R^2R_{\text{ш}}^2\Delta f}{(R+R_{\text{ш}})^2pV}\,\frac{\tau}{1+4\pi^2f^2\tau^2}, \qquad (1),$$

Hole trapping cross section...

where $U_{\text{ш}} \equiv U_{\text{noise}}$, R is the resistance of the specimen, $R_{\text{л}}$ is the load resistance connected in series with the specimen, U is the battery voltage, V is the volume of the specimen, p is the majority carrier concentration, f is the frequency, Δf is the band width of the measuring unit. From this expression it follows that the majority carrier lifetime in the plateau range ($f \ll 1/\tau$) of the frequency dependence of the noise can be calculated from

$$\tau = \frac{U_{\text{л}}^2 (R + R_{\text{л}})^4 pV}{4U^2 R^2 R_{\text{л}}^2 \Delta f};$$

In the range of decreasing frequency dependence, τ can be calculated from $\tau = 1/2\pi f_{1/2}$, where $f_{1/2}$ is the frequency at which U^2_{noise} drops to half the value at frequencies in the plateau range. p and the recombination center concentration N_g were determined from the temperature dependence of the Hall coefficient. The noise spectrum was measured in the frequency ranges $30 - 3 \cdot 10^5$ cps and $1.6 \cdot 10^5 - 10^7$ cps by two devices. The value

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B104/B186

Hole trapping cross section...

$(1\text{-}1.6)\cdot 10^{-14}$ cm^2 was obtained for the hole trapping cross section by means of the τ values and the relation $\sigma_p^- = 1/\bar{v}_T \tau N_g$, where v_T is the mean thermal velocity of the carriers. There are 2 figures and 1 table.

SUBMITTED: September 5, 1962

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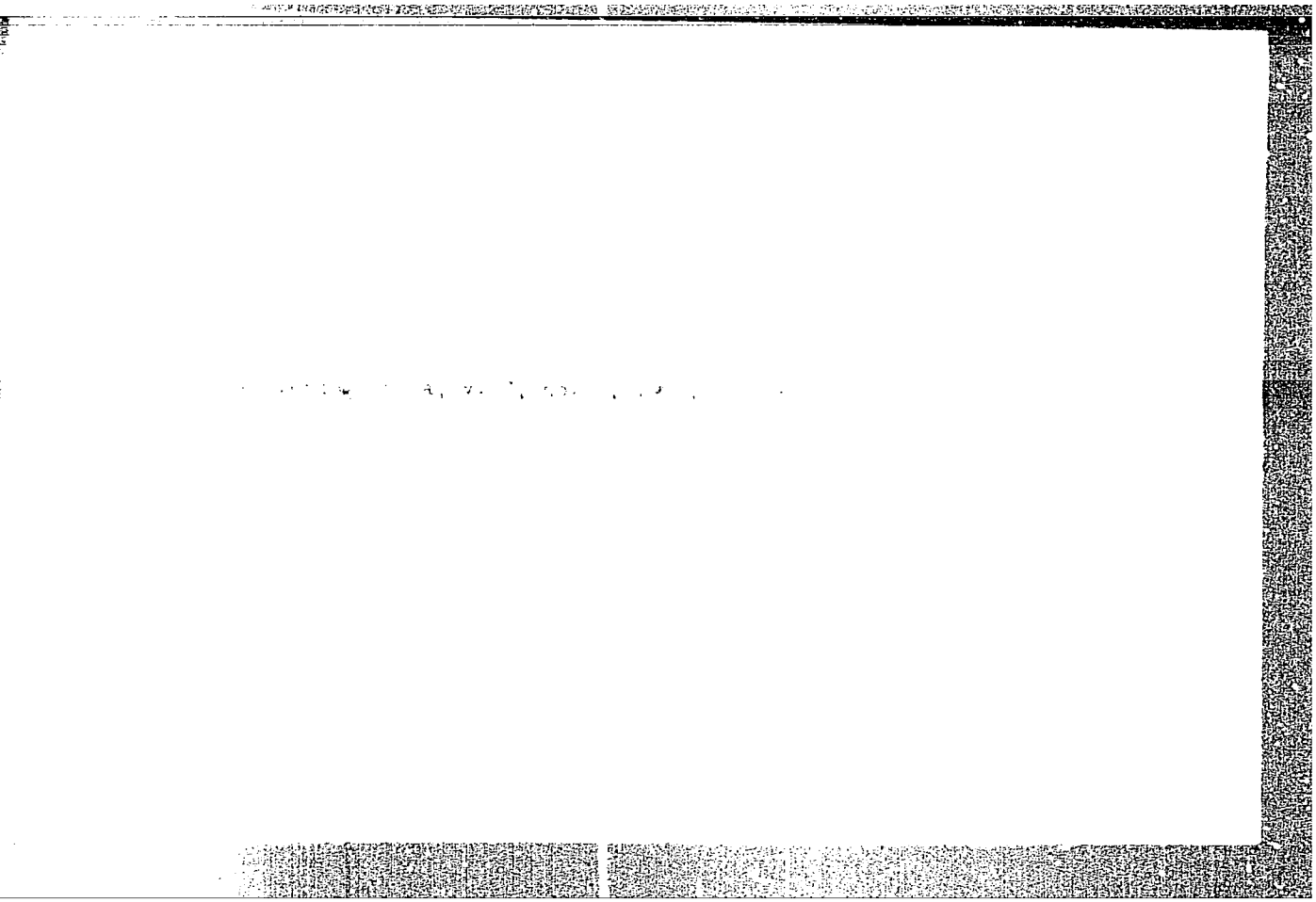

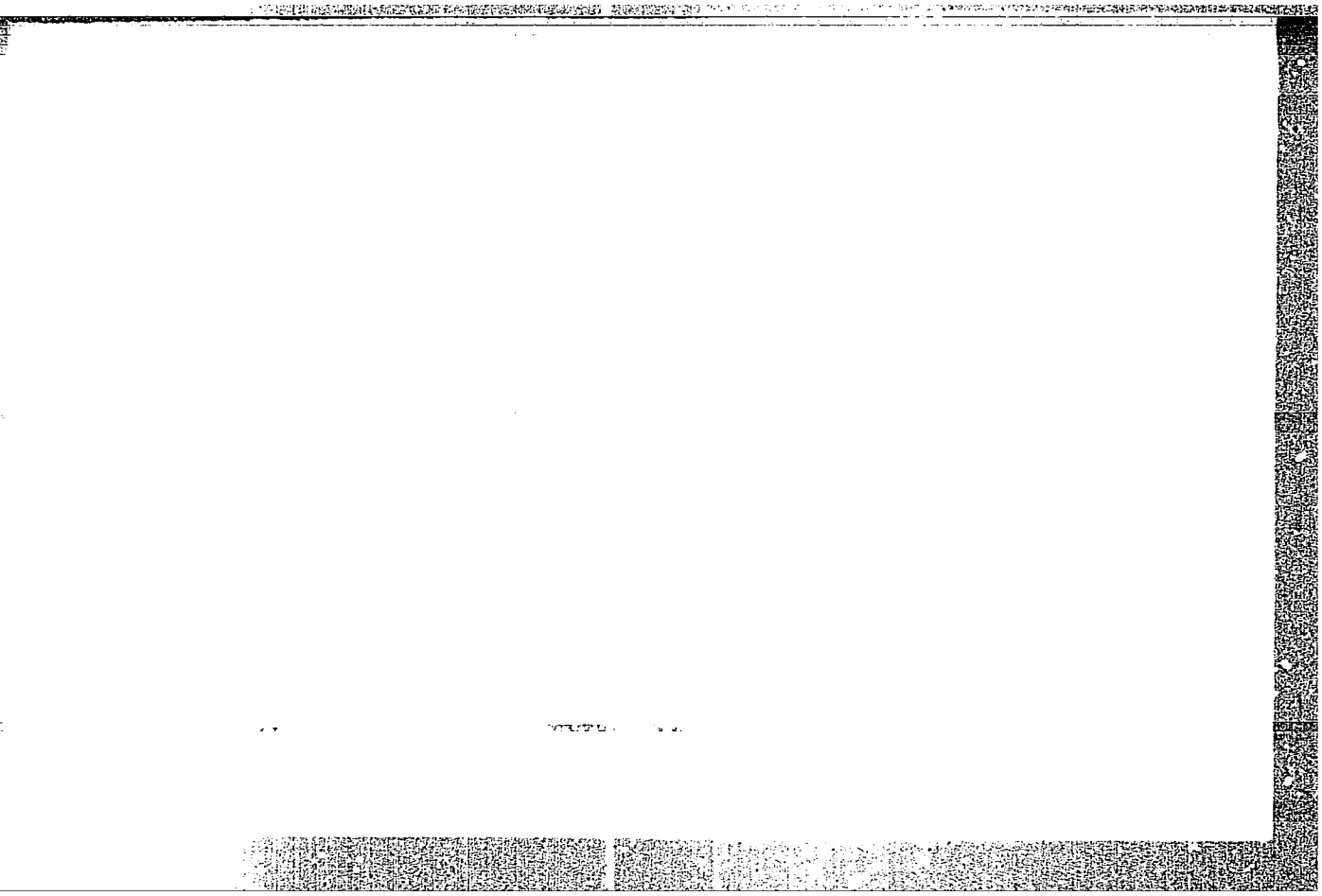

APPROVED FOR RELEASE: 08/23/2000 CIA-RDP86-00513R000927420010-6"

L 39[illegible]-66
ACCESSION NR: AP5025406 UR/0181/65/007/010/3132/3134

AUTHOR: Kaufman, S. A.; Kulikov, K. M. 48 B

TITLE: The cross section for capture of holes by mercury and zinc ions in germanium 27

SOURCE: Fizika tverdogo tela, v. 7, no. 10, 1965, 3132-3134

TOPIC TAGS: germanium, capture cross section, Hall constant, recombination center, lifetime, generation recombination noise

ABSTRACT: The capture cross sections for holes by Hg^- and $Zn^=$ ions in Ge doped with impurities to a concentration of 3—10 x 10^{14} cm^{-3} and compensated with Sb were determined. The experiments were conducted at ~55K using samples 2 x 2 x 10 mm. The number of recombination centers was calculated from the temperature dependence of the Hall constant, and the lifetime of the holes, from the frequency variation of generation-recombination noise. The capture cross section for holes by Hg^- in Ge was estimated to be ~7 x 10^{-14} cm^2 and that by $Zn^=$ in Ge, 1.5 x 10^{-13} cm^2. Orig. art. has: 2 figures and 1 formula. [CS]

ASSOCIATION: none

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KULIKOV, K.N.; GORBACHEVA, V.O.

Tensiometer for measuring the tension in moving threads. Khim. volok. no.4:63-64 '64. (MIRA 18:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo volokna.